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ABSTRACT

The study assessed the self-concept of academic ability among 6th, 8th, 10th, and 12th grade Indian children, compared their level of self-concept with that of other children enrolled in the same classes to find out the role of socioeconomic and ethnic background in determining the level of self-concept, and examined the factors that correlated with self-concept and academic achievement of Indian children. A total of 230 students were administered the Brookover Scale of "Self-Concept of Academic Ability". Schools provided, when available, the percentile scores from the verbal and mathematics tests and the composite scores taken from the Iowa Basic and the Iowa Test of Educational Development. In addition, questionnaires relating to the family's educational and economic background, and mobility were sent to the family of each student who completed the Brookover Scale; 76 questionnaires were returned. Grade point averages were used only for the 10th and 12th grade students. Data were analyzed using traditional analysis of variance techniques and factorial designs and randomized blocks. Based on the analyzed data, the following conclusions were made: self-concept provided a good predictor of GPA; no significant differences existed between grade school and high school Indian students in their self-concept scores; the mean self-concept score and the mean GPA for Indian students were significantly lower than for white students; there was a strong correlation between family income and self-concept. (NQ)

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THE SELF-CONCEPT OF ACADEMIC ABILITY AMONG AMERICAN INDIAN STUDENTS

A RESEARCH REPORT

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THE SELF-CONCEPT OF ACADEMIC ABILITY
AMONG AMERICAN INDIAN STUDENTS

A Research Report

This report is based on a research study funded by the Faculty Research Committee, Central Washington State College, Ellensburg, Washington. Contract No. 140-00-100-3994.

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This final report is compiled and written by Dr. Mohammed E. Abdel-Mawgood and Mr. Glenn Hatch. Ms. Frieda Kirk wrote the part on the Physical Setting in Chapter I. pp. 13-16.

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August 5, 1973

CHAPTER I

THE PROBLEM AND THE SETTING

I. 1 Abstract:

Equality of educational opportunities has been considered a central goal of American education. Thus, the education of various minorities in this country represents a challenge to the American school today. The interest in minority education has been growing steadily on all governmental levels; Federal, State and Local. In 1968, Central Washington State College received Federal funds to establish the Center for the Study of Migrant and Indian Education. This Center is located in Toppenish, Washington on the Yakima Indian Nation's Reservation. It has been successfully working with school districts that have a high proportion of Indian and migrant children. The Center's activities include developing, producing and disseminating authentic cultural materials, training teachers and teacher aides, in-service training, developing bi-lingual curriculum materials and piloting projects in teaching how to help migrant children overcome some of their learning problems. However, the Center has not been engaged in carrying out field studies or experimental research. This has been due to lack of funds rather than to lack of interest and enthusiasm on the part of the staff.

There is a great need for conducting empirical research study involving minority children. Such work can assess their characteristics and discover their needs and perhaps most importantly help their teachers learn to teach according to the ways in which these children learn which may not necessarily be the way these teachers were trained. This type of research will help in developing more meaningful and relevant curriculum materials. The National Study of American Indian Education, (Havighurst, 1970) pointed out that "studies involving American Indians traditionally have not dealt with the concept of self and those who have attempted to draw conclusions about the self-concept have stressed anthropological judgments by non-Indian observers rather than Indian self reports."¹ We know of no research that has attempted to study the self-concept of academic ability among Indian children that relates this to their academic achievement and the problems they face in the classroom.

I. 2. Purposes of the Study

1. To assess the self-concept of academic ability among the Indian children enrolled in the 6th, 8th, 10th and 12th grades in Mt. Adams School

1. Philip H. Dreyer: "The meaning and validity of the Phenomenal Self Concept Among Indian students" in Robert Havighurst; ed: The National Study of American Indian Education, Vol. I, No. 4, 1970, p. 2.

District #209, White Swan, Washington.

2. To ascertain the influence of self-concept of academic ability on the academic achievement of the Indian students.
3. To compare the self-concept of academic ability of Indian children with that of Caucasian children and children of other minorities.
4. To examine the hypothesis that the self-concept of academic ability is a good predictor of academic achievement.
5. To lay the foundation for further research and to foster the establishment of educational programs and facilities which will improve self-concept and the academic achievement of the Indian students. Such compensatory educational programs ought to be founded on an empirical basis rather than just on casual observations.
6. To discover the factors and variables which influence the self-concept of academic ability among Indian students.
7. To ascertain the role and effect of those who are identified by the students as "academic significant others" in influencing the children's self-concept of academic ability.
8. To estimate the significance of the self-concept of academic ability developed by Professor Brookover as a predictor of academic achievement.

I. 3. Statement of the Problem

This research intends to assess the self-concept of academic ability among Indian students enrolled in grades 6 thru 12. It also intends to compare their level of self-concept with that of other children enrolled in the same classess to find out the role of socio-economic and ethnic background in determining the level of self-concept. We also hope that the analysis of the data given in Chapter 4 will shed some light on the factors that correlate with self-concept on one hand with academic achievement of Indian children on the other hand. Specifically, this study intends to find answers to the following questions.

1. What is the level of self-concept of academic ability of Indian students as compared with Caucasian and Mexican-American students enrolled in the same schools?
2. Who do Indian pupils identify as "academic significant others?"
3. Does the level of self-concept of academic ability differ because of sex, age, economic status and intelligence?
4. Is there any significant statistical evidence about the relationship between self-concept of academic ability and actual academic achievement?

5. Does the way the student perceives "significant others" and "academic significant others" influence his level of self-concept and/or his academic achievement?
6. Can the level of self-concept of a pupil be used as an index by which to predict his academic achievement?
7. When the self-concept of academic ability is used as a predictor of academic achievement, how effective is this index as compared with other indices?
8. Is there a significant correlation between the level of self-concept and the achievement in a particular subject or skill?

I. 4. Hypotheses to be Tested

The following hypotheses were formulated and statistically tested:

1. Ho: The mean S-C score for Indian students is the same for all grade levels.
2. Ho: The mean S-C score for white students is the same for all grade levels.

3. Ho: The mean S-C scores for Indian, white and Mexican-American students are the same. Similar tests for other scores are listed in Chapter 3.
4. Ho: In the presence of S-C, the Iowa scores make no significant contribution to the reduction in residual error when predicting grade point.
5. Ho: In the presence of S-C and the Iowa verbal score, the other Iowa scores contribute nothing to the reduction in the residual error.
6. Ho: If the mean GPA for Indian students and white students are adjusted for differences in the mean GPA between Indian and white students.
7. Ho: If the mean GPA of white and Indian students are adjusted for differences in S-C only, there will be no difference in GPA between Indian and white students.
8. Ho: Choosing school personnel as "academically significant" others is independent of racial group.
9. Ho: S-C is independent of economic background.

I. 5. Significance of the Problem

Certainly, the study of individual's self-concept is important to understanding his behavior. An individual knows what he is like through what he thinks of himself and through his accurate interpretation of the reflected attitudes of others about him. Because the individual is a social being he always makes an effort to be aware of others' attitudes toward him and to try to satisfy them by his overt behavior. "While certain groups have been shown to have characteristic self-concepts, wide individual differences occur within any single sample of people." (Thompson, 1972) We believe this research is worthy of our effort because of several reasons which provide our rationale for the significance of the study. We will approach the following problems:

1. Accounting for individual differences in self-concept of academic ability as manipulated by variables such as ethnic background, age, sex, socio-economic background, I.Q., social mobility and level of education within the family unit.
2. Understanding the self-concept as a variable in human behavior. Through the power of controlling self-concept as a variable and through the use of the analysis of co-variance and regression we should be able to study the relative power of self-

concept as compared with other variables which associate with and influence human behavior.

3. Provide impetus for further studies on the self-concept of academic ability and consider how it can be improved and learn to develop better educational programs for Indian students based on empirical findings.
4. Discover, validate, and refine better indices through which we can predict and interpret human behavior. In this research, the self-concept of academic ability is tested as a predictor of academic achievement.
5. Infer from the relationship between self-concept and academic achievement, if so proven, that the role of self-concept is a variable in determining the Indian student's success or failure.

I. 6. Limitations of the Problem

Any research study is limited by its scope and design. This study is no exception. This is a survey method using a correlation comparative design. The following have to be considered as limitations:

1. It is a descriptive not a prescriptive research.
2. While we were able to discover and control several variables related to self-concept, we did not

attempt to manipulate any variable in the way we do in experimental research.

3. This study is limited in scope regarding the notion of strengthening self-concept of academic ability and thus improving academic achievement. This ideas needs to be studied in an experimental design research.
4. Correlation does not mean causation. This is an unresolved issue in research on self-concept. (See Fitts, 1972 and Thompson, 1972) The reader's attention is drawn to the fact that while the data might reveal correlation it does not necessarily infer causality.

I. 7. Procedures

Chapter 3 of this report describes in detail the population used in this study. The procedures which were followed in collecting the data, the sources of the data, and the statistical techniques applied in this study were also described. The main instrument used was the Brookover's scale of self-concept of academic ability (See Appendix A) Olson (1972) reported that this instrument has the following psychometric characteristics:

1. Hoyt's analysis of variance reliability for a 3 year period of .82, .91, and .92 for males and .77, .84, and .84 for females.
2. Co-efficients of reporductability for 3 years of .95, .96, and .97 for males and .96, .92 and .93 for females.
3. Correlation between general self-concept and specific subject self-concept for a 3 year period ranging from .60 to .84.
4. Predictive validity based on predicting grades, using general self-concept and IQ results in correlation of .70 for females and .71 for males.

I. 8. The Physical Setting

The Yakima Indian Reservation located in the center of the State of Washington was established in 1855. In 1856, the United States Government established Fort Simcoe as a frontier army post on the reservation. It was built on the site known among the Indians as Mool-Mool (Bubbling Waters) so named for its gurgling natural springs. It had long been a favorite meeting place for the different tribes in the area and was on the north-south trade route for the Indians living between the Cascade Mountains and the Columbia River.

Initially, the Fort's military were concerned with achieving and maintaining peace with the federation of fourteen tribes that make up the Yakima Indian Nation. The army was also responsible for protecting the Indians from settlers and miners who continually wanted more Indian lands. By 1859, an uneasy peace had been established in the area and Fort Simcoe became the Indian Agency for the Yakima Indians until 1924. During these early years, many present day agricultural practices were begun including cattle raising and intensive irrigation of the land for farming. Lumbering was also begun on the tribal lands since approximately ahfl of the reservation consisted of heavily forested hills in the Cascade Mountains.

In 1924, the Indian Agency was moved from Fort Simcoe to its present location in Toppenish. As a result of this, the White Swan Community became the center for education, shopping, mail, etc. for the western portions of the Yakima Valley and Medicine Valley. White Swan was apparently named for Chief White Swan who was elected to lead the Yakima Confederated tribes once Kamiakin, the Yakima's great war leader, chose to live in exile.

The town of White Swan is located about 10 miles NE of Fort Simcoe and 20 miles SW of the City of Yakima, which is the largest city in the area. White Swan is unincorporated.

It has a population of approximately 650. About 60% of these are Indians which makes this the only part of the reservation where the Indians are numerically in the majority. The White Swan Sawmill is located here and it is the largest single employer in the region with an approximate total of 140 employees. Although exact data is not available, Indian unemployment rates are higher in the White Swan area than elsewhere due to the limited number of jobs available. And, as in other localities, Indians are not represented in the existing jobs in proportion to their numbers. For instance, in the wood products' industry of the approximate 140 employed not more than 25 are Indians.

The community's physical facilities include, one fire station, which has one paid fireman and equipment in town, a private airport, one elementary and one high school, three churches, and a new federally funded Indian Community Action Center. The area is also served by REA and Pacific Power and Light Co and has telephone service from United Telephone Company of the Northwest. It is on a spur line of the Northern Pacific Railway (Burlington Northern) with freight service only. The local law enforcement is provided by the agency, tribe, and county. There is no form of town or village government, and there is no city water or sewage disposal system, nor is there a bank, hospital or doctor in the town.

The population of the agricultural area surrounding White Swan is estimated at approximately 3,000 adults. This area sends its students to the Mt. Adams School District which includes the schools at White Swan and Harrah. These were the schools used in this study.

The population of the Mt. Adams School District by minority groups is as follows:

Year	Minority %	Total Enrolled	Minority Total	Black	Oriental	Chicanos	Indian
1968	59	1055	624	1	4	134	486
1971	59	1005	597	4	3	106	484

This school composition reflects the adult population of the area. The population figures also indicate the large majority of pupils in these schools come from the surrounding agricultural area. These agricultural lands if not worked by the Indians are leased from the Indians.

I. 9. Overview

This report consists of five chapters. Chapter I defines the problem and states purposes, significance and limitations of the problem. It also lists the hypotheses which are tested in this research. Also, it provides the reader with

a background of the physical setting, White Swan, where this research took place.

Chapter II provides the reader with a condensed review of the literature pertinent to self-concept has three parts.

- A. Theoretical Developments
- B. Self-Concept and Correlating Variables
- C. Self-Concept of Academic Ability

This chapter should provide the theoretical foundations for the study.

Chapter III describes the design and statistical techniques applied and the computer inputs.

Chapter IV reports the findings of this research. These findings are grouped in two main sections descriptive statistics and inferential. Some findings are illustrated.

Chapter V summarizes the study and lists some basic conclusions, discussions and recommendations.

CHAPTER II

SELF-CONCEPT: A THEORY BACKGROUND

II. 1. Theoretical Developments

LaBenne and Greene (1969) defined self-concept as "the person's total appraisal of his appearance, background and origins, abilities and resources, attitudes and feelings which culminates as a directing force in behavior."¹ The following are several of the assumptions underlying that definition:

1. Self-concept is that organization of qualities that the individual attributes to himself emerging from social interaction which in turn guides or influence the behavior of that individual.
2. A person's conscious awareness, what he thinks and feels, is that which primarily guides, controls, and regulates his performance and action.
3. While the self-concept is not an observable phenomenon, it can be inferred by observing its influence on the individual's behavior and actions over a period of time. If a person continues to behave in a certain manner for a period of time, we can infer a "limiting mechanism" from his behavior. Thus, self-concept can be measured or assessed. One way of doing such measurement

is by getting information from the individual himself or from what Rogers (1951) calls "the internal frame of reference of the individual himself."

4. Under normal circumstances, individuals must be aware of their self-concept. Under abnormal circumstances, individual's unconscious activity may be reflected in behavioral abnormality or mental illness. In such cases, it is difficult to assess the self-concept of such abnormal individuals through their actions or what they say because they are not aware of their reasons for their own actions.
5. Persons who function effectively under stress and who cope with stressful situations successfully can be described as having positive self-concepts. Thus, differences in self-concept among individuals is a qualitative feature.
6. Self-concept is a learned rather than inherited personal quality. Each individual develops his self-concept through the process of communicating and interacting with others. Social interaction is the source for the individual's development of his identity and his self-concept.

Consequently, the quality and the amount of social contact the individual will have determines the nature and the quality of his self-concept. In other words, the environment could be either a facilitating or inhibiting force for the development of a good self-concept.

7. Because self-reporting is the major way to measure or assess self-concept, measurement specialists often raise the questions of external validity. The measure is valid to the degree the self-reporting is valid. Subjectivity of self-reporting is responsible for this problem.
8. Those individuals considered by the person as "significant others" play an important role in the development of an individual's self-concept. LeBenne and Greene (1969) defined significant others as "the people who most intimately administer the rewards and punishments" in a person's life. Certainly, classroom teachers should be included in this group. (p. 14) However, Brookover (1964) classifies teachers as "academic significant others."
9. As a consequence of the previous point, we can say that the cultural context is an instrumental factor in shaping the self-concept of the individuals who live and experience within these

contexts. The work of Whiting and Child (1953) on child rearing patterns in various cultures supports this assertion. We are particularly interested in studying the influence of the culture of the native Americans on the development of the self-concept of the American Indian students. This research intends to compare the differences in self-concepts among individuals who come from three distinctive sub-cultures, namely the American Indian, Mexican-American and the European-American (i.e. the so-called white man).

The field of social psychology paved the way to the study and understanding of self-concept. The work of Adler, Fromm, Horney, and Sullivan is very helpful in this respect. The reader may encounter several labels for the social psychology theories pertaining to the area of self-concept. Such labels may include: the symbolic interaction theory, the field theory, and the interpersonal relationship theory. It may be proper to give credit to William James (1890) who considered ego as the individual's sense of identity. His view on self is well developed and he considered attitudes and feelings are important for he calls them self-preservation.

Following James, we recognize the contribution of G. W. Allport (1937) who developed an operational concept for the "dynamic self." He calls the ego, or self, functions of the propiate functions of the personality. The "Proprium" comprises awareness of self and striving activity; it includes bodily sense, self-image, self-esteem, and identity as well as thinking and knowing. (Ibid. p. 3) When we move to Freud and the scientific psychology era, we find out that "self" is a central concern of the psychological theory. The ego is considered by Freud as the functional agent or executive of the personality which guides the person to make better choices. It decides what instincts to satisfy and by which means and to what extent. Unlike James and Allport, Freud pays little attention to self-image.

G. H. Mead on the other hand focuses on the role of others in the development of self. Mead (1934) suggests the person becomes aware or self-conscious of the way people react to him as an object. Thus, we can expect the person to have different styles or patterns of self depending on the environment and in the way he finds himself. (i.e. school, home, self and social self.) So, Freud views self as a process while Mead views it as an object. According to Levine (1936) the self-concept is represented by a life space region which determines present belief about the self. This ideas of "life space" brings self closest

to Mead's concept as an object. The theories of Lundholm (1940) Sheriff and Cantril are also complementary and supportive to Mead's theory. We notice, however, that Symonds (1951) tried to combine the psychoanalytic theory of Freud and the social philosophy of Mead by considering the ego as a group or processes and the self as the manner in which the individual reacts to himself, while self and ego are distinct aspects of personality, they are mutually interacting. We learn from Cattell (1950) that self is the major cause of stability and order for the human behavior. Cattell also contributed the concept of the "real self" and the "ideal self." He calls the first the actual self and the later the aspirational self. Such contribution by Cattell reinforced Rogers' (1951) idea about self congruency. "Behavior is constistant with the organized hypothesis and concepts of the self-structure."¹

Finally, any literature review on self-concept theory is not considered complete without mentioning the work of Snygg and Combs on phenomenal theory.

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1. See Carl Rogers: Client Centered Therapy: It's Currenent Practice, Implications, and Theory. (Boston, Houghton Mifflin Company, 1951, p. 141)

They (1949) consider that "all behavior, without exception, is completely determined by and pertinent to the phenomenal field of the behaving organism."² How a person feels and thinks determine his actions. To them, the self is both a person and an object. "The self is composed of perceptions concerning the individual and this organization of perceptions in turns his vital and important effect upon the behavior of the individual."³

In summary, what theorists are telling us is that self-concept is a product of social interactions, and it is not observable in itself but it is rather inferred from the behavior of the individual and it can be measured by one or more of the following techniques:⁴

1. Introspective self-reflections of current self-concept and school or work settings.
2. Congruence between descriptions of current self-concept and ideal self-concept.
3. Congruence between subjective self reports and action and the objective reports of clinically trained observers.
4. Nonintrospective inferences derived from projective techniques and clinical interviews.

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2. D. Snygg and A.W. Combs: Individual Behavior, New York, Harper & Row Publishers, 1949, p. 15.
 3. A.W. Combs, Snygg and Combs' Phenomenal Self, in theories of personality, Hall and Lindsey, eds. New York, John Wiley and Sons, Inc., 1963, p. 470.
 4. See LEBenne and Greene, op. cit. pp. 11-12.

Also, because of the individual's concept of himself and of what others "think of him in determining that individual's actions and behavior, the study of self-concept is of great assistance to educators for understanding the failures and success, the individual student may have in the school. Individuals with narrow self-concepts are likely to have more failures than success and they tend to have a narrow perceptual field. The more positive the self-concept of the individual the more wider his perceptual field gets and the more "personal" the experiences becomes obvious to him. Thus, we can safely generalize saying that while the behavior of the individual is an index of his self, the self-concept is the mirror on which the actions and the behaviors of that individual can be seen. As stated in Chapter I, this research intends to get information on the self-concept of academic ability among the American Indian students, ascertain which factors correlate highly and positive with each self-concept and use the data in interpreting the academic achievement of those students who are being investigated. What makes this research interesting is that we are trying to look at a sub-culture as a variable to see to what extent it influences the development of self-concept.

II. 2. Self-Concept and Correlating Variables

The major purpose of this section is to summarize the major findings of Warren Thompson's research on "Correlates of the Self-Concept." (1972) Despite the fact that his research is limited by its scope, design, instrument and population, we feel that the reader can build up some useful and broad generalizations.

1. Age and Self-Concept:

Thompson reported that "there is usually a high degree consistency across samples within each age group and that the self-concept profile of each of these groups have characteristic patterns."⁵ He also reported that self esteem increases with age. A ^{study} by Grant (1966) seems to support this finding. Grant states: "One tends to report a more positive self-concept with increasing age. However, the fact that denial of one's faults also increases with age suggests the possibility that the increase in reports self-satisfaction may have been a function of denial rather than an actual increase of self esteem."⁶

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5. Warren Thompson: Correlates of self-concept, Dede Wallace Center, Monograph VI, June, 1972, p. 18.
 6. C.H. Grant, Age differences in Self-Concept from early adulthood through old age, unpublished doctoral dissertation, University of Nebraska, 1966, p. 73.

This finding is in sharp disagreement with Fitts (1965) finding that there is no significant age differences in self-concept. Age is considered by Thompson and others (such as Grant (1966), Franklin (1970) to be an important variable in accounting for individual differences in self-concept. This means age should be either manipulated and studied or controlled and be held constant in any research on self-concept.

2. Race and Self-Concept

While Thompson reports some relationship between race and self-concept, he admits that such relationship is not as clear as the relationship between age and self-concept. Failure to control variables such as intelligence, socio-economic level and verbal ability limited the clarity of the relationship claims that Negro samples from Junior high school and high school indicated a below average level of self esteem. Data also indicated that Negroes show greater than average defensiveness as well as contradiction, confusions and general conflict in self-perception. "The variability scores which measure the amount of variability on inconsistency from one area of self-perception to another are generally high for Negro samples."⁷

7. Thompson: Op. cit. 38.

These findings by Thompson's admissions raise numerous questions regarding their generalize ability. Some of the questions include:

- a. Do Negroes have different self-concept because they are Negro per se?; or,
- b. Do these differences exist because they are members of a minority groups, or because they are culturally and economical deprived? or because they lived in the South?; or, because they are undergoing the stresses of a changing social order? or, because they are more deviant and disturbed as individuals?⁸

We can add to those another question which is whether the differences between black and white indicate two types or patterns of self-concept (a matter of kind) rather than a degree since the self-concept is a cultural bi-product? Maybe it is better to view it within its cultural context.

3. Socio-economic level and self-concept: Thompson noted that economical disadvantaged correlates with self-concept especially when it is combined with age. He concludes:

8. Ibid. p. 39.

"Among young groups composed of junior high school students, self-concept scores are consistent across samples, and then scores closely resemble the scores of non-disadvantaged junior high school students. However, most of the high school, young adults and adult groups have scores which show less similarity across samples and less similarity to the scores of their non-disadvantaged peers. It is logical to assume that disadvantaged will ultimately affect self-concept and that this effect increases as the disadvantaged person grows older."⁹

Again, we can mention the same problem mentioned before and that is because of complexity of the variables it is difficult to attribute any cause - effect - relationship to any single variable.

4. Scores of other psychological tests and self-concept, Thompson reported on the relationships between self-concept variables and measures of dogmatism, anxiety, self-disclosure, and interperson function. He concludes:

9. Ibid. pp. 52-53.

"Data seems to indicate there is a slight negative relationship between self esteem and dogmatism, and findings suggest that the true relationship may be correlenier. A substantial leniar relationship between self-concept and anxiety has been found in numerous studies with a variety of samples and several measures of anxiety. The relationship between self-concept and self disclosure appears to be complex and findings indicate that self disclosing behavior is a factor in positive self-concept change. Individuals with healhy self-concepts are more active in behaviors which involves expressing affection, inclusion and control toward others than they are in seeking their behaviors from others. Good interpersonal communication is associated with a well integrated self-concept."¹⁰

These are not buy no means the only variables that associates with self-concept. There are others such as

10. Ibid. p. 80.

sex, intelligence, academic achievement and social and geographic mobility. Studying such variables will help in understanding the individual's self-concept and in turn will help in making realistic inferences about the individual's behavior, his attitudes, cognitions and interpersonal communications.

II. 3. The Self-Concept of Academic Ability

As stated before, the self-concept guides the individual's action and behavior. Academic achievement is certainly a behavior which is influenced by the individual's self-concept. Combs and Snygg (1959) have emphasized the importance of an individual's perception on his intelligence and abilities to learn. The so called self-concept of academic ability (SCAA) is a part of the individual's general self-concept or you may consider it as that pattern of self the individual develops as a result of his interaction and contact with academic experiences and situations. Brookover and Gottlieb (1964) state:

"If the child perceives that he is unable to learn mathematics or some other areas of behavior, this self-concept of his ability becomes a functionally limiting factor of his school achievement."

They hypothesized that:

- a. Persons learn to behave in ways that each consider appropriate to himself.
- b. Appropriateness of behavior is defined by each person through the internalization of the expectations of "significant others."
- c. The functional limits of the person's ability to learn are determined by his self-conceptions.
- d. The individual learns what he believes "significant others" expect him to learn in the classroom and in other situations.

Brookover and associates (1965) studied the self-concept and its effect on achievement, and its relationship with other factors. They found a direct relationship between academic achievement and self-concept for students in Grades 7 - 12. Studies by Brookover, Paterson and Thomas (1962), Morse (1963), Brookover, Thomas and Paterson (1964), Jornis and Erickson (1967), and Olson (1969, 1970, 1971) seem to concur with Brookover's statement:

"When applied to the specific learning situation, a relevant aspect of self-concept is the person's conception of his own ability to learn the accepted type of academic behavior."

Each child has his own self-concept of academic ability. The evaluation a person makes of himself with respect to the ability to achieve in academic tasks is influential factor in determining his academic success or failure. Brookover (1965) defined the self-concept of academic ability as "the behavior in which one indicates to himself (publicly or privately) his ability to achieve in academic tasks as composed with others engaged in the same tasks." This definition is based on Mead's (1934) conceptualization of self-concept as the individual's awareness and articulation of his attitudes, feelings and cognition.

Brookover (1962) indicated that academic achievement can be improved by deliberately enhancing the self-concept of academic ability through changing symbolic behavior of "significant others" and "academic significant others", and thus, the student's perception of the expectations and aspirations which those individuals hold for him.

It is important to point out that the self-concept of academic ability is not a constant variable. It is rather a flexible and a developmental one. It is formed in the early life of the individual and varies throughout his life depending on what kind of experiences the individual encounters and what kind of "significant others" he meets. Also, it is important to point out that teachers are among the most "academic significant others" who

influence the life of the child in general and his self-concept in particular.

Lucky (1945) demonstrated that low academic achievement was often due to the child's definition of himself as a non learner. Walsh (1956) found that "high ability, low achievers" had a negative self regard when matched with "high ability", high achievers". Studies by Benjamins (1950), Reeder (1955), and Buckley and Scanlan (1956) proved that the individual's self-concept has a direct bearing on his intellectual efficiency. Brookover, Thomas and Paterson (1964) found a statistically significant positive correlation between self-concept and perceived evaluation of significant others, general performance in academic subjects, and achievement in specific subject matter fields. Davidson and Lange (1960) showed that the more positive the children's perception of their teacher's feelings toward them, the better was their achievement and the more desirable was their classroom behavior. In a study of emotionally handicapped children, LeBenne (1965) found a highly significant relationship between the teacher's self-concept and the pupil's perception of himself in the classroom.

In summary, we notice that there are numerous studies which demonstrate the direct relationship between the individual's self-concept and his academic achievement. This research intends to verify such conclusion in a different population. If we move our hypothesized relationship between SCAA and academic achievement on a sample American Indian students, this will give the previous research on the subject more external validity as well as more generalizability. The Brookover's scale has been used in several previous studies that have been reported in the literature. However, we do not know of its use in a research on American Indian students. Brookover's research without doubt has been very helpful and his findings are considered pertinent to the investigation at hand. The Brookover study was longitudinal and it was thus possible to manipulate certain variables and to measure and contrast groups subject to different treatment. In particular, in an experimental research involving a control group, a placebo group and an experimental group of low academic achievers, the parents of the students in the experimental group were involved in discussion in which they were instructed, encouraged and enhance the self-concept of academic ability in their children. These discussions were carried out over a period of one year. At the end of the year, the

measured change in self-concept and grade point average were both significant while no significant change occurred in the placebo or control groups. Other experiments were attempted at the same time with less success. The parents, as significant others were able to effect changes in self-concept where counselors were not. It was also reported that when the treatment was withdrawn, the experimental group fell back to its pretreatment level and remained low throughout high school. The other experiments showed no delayed reaction, the subject, remaining at their low level throughout their schooling.

Chapter III

RESEARCH DESIGN AND STATISTICAL PROCEDURE

III. 1. Sources of the Data

The Brookover Scale of "Self-Concept of Academic Ability" (SC) was administered to a total of 230 students in the 6th, 8th, 10th and 12th grades in the three schools in the Mt. Adams school district in March, 1973. The questionnaires were handed out to the students in the classrooms and the teachers either left the room or remained in the background while the students completed the questionnaires. A minimum of direction was given to the students and any questions they had were answered individually. The students were assured that the questionnaire was not an examination since many of them at all grade levels asked if they were going to be graded.

The responses were scored as follows:

Among the best	5
Above Average	4
Average	3
Below Average	2
Among the poorest	1

The SC scores are the point sums adjusted to give a value in the interval (0, 1).

For each completed questionnaire, when available, the schools provided data from the Iowa Basic (grade school) and the Iowa Test of Educational Development (high school). From these data the percentile scores from the verbal and mathematics tests and the composite score were used.

In addition to the SC scores and the data provided by the schools a questionnaire relating to educational background of the family, mobility of the family, and economic background, was sent to the family of each student who completed the SC. Seventy-six questionnaires were returned or approximately 33% of the original sample.

On the basis of these data, the factor of geographic mobility, was eliminated from the study. Over 70% of the respondents have lived in the Yakima Valley for more than ten years.

Grade point averages (GPA) for the 10th and 12th grade students were available and this data was used in the study. No GPA was available for grade school students.

III. 2. The Statistical Procedure

Traditional analysis of variance techniques such as factorial designs and randomized blocks are special cases of the more general regression analysis on dummy

variables (0, 1). In these cases the analysis has been specialized by certain simplifying constraints such as balanced data. In cases where the number of observations in each block is large and the differences in numbers of observations is small it may be justifiable to randomly throw out data to achieve a balanced design. In our data, however, we have test scores and data for 115 American Indian students, 16 Spanish American students, and 96 Caucasian students. The sample also included 2 Asian and one Afro-American students. The data for these students were omitted from the analysis because of statistically invalid sample size and omitted from tables of test results because they would be individually identifiable.

As will be shown, the regression on dummy variables fits the same general linear model as that used for regression on random variables. In the case of regression on random variables, the estimator of the vector of parameters, b , is unique. This is the general linear model of full rank. Regression on dummy variables gives rise to models of less than full rank in which the estimator of the parameter vector is not unique. We shall discuss first the full rank model.

In the linear model

$$Y = Xb = e,$$

where

$$X = \begin{bmatrix} x_{10} & x_{11} & \dots & x_{1K} \\ x_{20} & x_{21} & \dots & x_{2K} \\ \dots & \dots & \dots & \dots \\ x_{n0} & x_{n1} & \dots & x_{nK} \end{bmatrix}$$

$$Y = \begin{bmatrix} y_1 \\ y_2 \\ \dots \\ y_n \end{bmatrix}$$

$$e = \begin{bmatrix} e_1 \\ e_2 \\ \dots \\ e_n \end{bmatrix}$$

$$\text{and } b = \begin{bmatrix} b_0 \\ b_1 \\ \dots \\ b_K \end{bmatrix}$$

let y_i be an observed score of the i th student, $x_{i0}=1$, x_{ij} be the observed score for the i th student on the j th test. Then e_i is the i th residual (error) and b is the vector of parameters to be estimated. If $E(e) = 0$ and $E(ee') = \sigma^2 I$, then the estimator $\hat{b}$ of b that minimizes ee' is given by

$$\hat{b} = (X'X)^{-1}X'Y.$$

This is the ordinary least squares estimator and if e is normally distributed it is also the maximum likelihood.

$$E(\hat{b}) = b \quad \text{and} \quad \text{Var}(\hat{b}) = (X'X)^{-1}\sigma^2.$$

The total sum of squares is

$$SST = Y'Y.$$

The residual sum of squares is

$$SSE = Y'Y - \hat{b}'X'Y.$$

The difference is the reduction in the sum of squares due to fitting the model, i.e.

$$SSR = SST - SSE = \hat{b}'X'Y.$$

Let $Q = SSR(\text{full}) - SSR(\text{reduced})$ where $SSR(\text{full})$ is the reduction due to fitting the full model and $SSR(\text{reduced})$ is the reduction in the model reduced by the hypothesis $K'b=0$.

The analysis of variance for testing

$$H : K'b=0$$

where

$$K' = \left[\overbrace{1 \ 1 \ \dots 0}^q \ \overbrace{0 \ 0 \ \dots 0}^{r-q} \right]$$

that is, to test the hypothesis at certain $b_i = 0$, is as follows,

AOV

Total	$Y'Y$	N
Full Model	SSR	r
Hypothesis	Q	q
Reduced Model	$SSR-Q$	$r-q$
Residual	SSE	$N-r$

where r is the rank of X and q is the rank of the matrix reduced by the hypothesis.

Thus tests of significant reductions may be made using the F distribution. This method of modelling has had wide application and is well known. It is used here to determine which combination of the scores available best predicts GPA.

Regression on dummy variables is identical to analysis of variance for unbalanced data. In the model

$$Y = Xb + e$$

the X matrix (the design matrix) will have rank less than the order of $X'X$, i.e. $(X'X)^{-1}$ does not exist. A generalized inverse G of $X'X$ may be found such that

$$b^0 = GX'Y$$

and

$$E(b^0) = Hb$$

where $H = GX'X$. Although G and b^0 are not unique, XXG' is invariant to the choice of G so

$$SSE = Y'Y - Y'XGX'Y = Y'Y - b^0'X'Y$$

as in regression. It can be shown that any linear function of the parameters of the model of the form $W'Hb$ is an estimable function and that its "best linear unbiased estimate" is

$$W'Hb = W'GX'Y.$$

Moreover the general linear hypothesis

$$H_0: K'b = 0$$

is testable whenever the matrix K is estimable or consists of a set of estimable functions. The analysis of variance is identical to that used in the full rank model.

In addition to the above regression and analysis of variance techniques the non-parametric "Pearson's Chi-Square" test of independence is used for qualitative data.

For a detailed description of these tests see Hays and Winkler¹ or Searle²

III. 3. Computer Programs

For the regression analyses a general multi-variate analysis program was used. The initial checking and data summary was done by a small program written for this purpose. The analysis of variance and the co-variance analysis data were derived from regressions on various groups. The multi-variate analysis program is based on those equations described in the preceding section.

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1. Hays, W.L. and Winkler, R.L., Statistics - Probability, Inference, and Decision, 1971, Holt, Rinehart & Winston
 2. Searle, S.R., Linear Models, 1971, John Wiley & Sons, Inc.

Chapter IV

ANALYSIS OF THE DATA

IV. 1. Summary of the Data

The following tables summarize the data collected at the schools. Sample sizes, means and standard deviation are grouped by ethnic origin and sex. The column total will not be the sum of the columns in all tables because the total includes 2 or 3 (depending on availability of the data) individuals from other ethnic groups. They are omitted from the study for the obvious reason of sample size.

Table 1 gives SC scores for the total sample. The Iowa Test used in the elementary schools is not the same test as that used in the high school. Therefore the data for the entire sample, although presented in Tables 2, 3 and 4 is not used in the statistical analysis. Tables 5 through 9 summarize the data from the high school, and Tables 10-13 summarize the data from the grade schools. The only common measurement available for both high school and grade school is the Sc.

TABLE 1

SUMMARY OF SC SCORES FOR THE TOTAL SAMPLE

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZES				
MALE	66	7	43	118
FEMALE	49	9	53	112
TOTAL	115	16	96	230
SAMPLE MEANS				
MALE	.60	.54	.68	.63
FEMALE	.59	.64	.69	.64
TOTAL	.60	.60	.69	.63
SAMPLE STANDARD DEVIATIONS				
MALE	.139	.152	.154	.149
FEMALE	.139	.103	.124	.137
TOTAL	.139	.133	.137	.143

TABLE 2

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Verbal)
FOR ALL GRADES

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZES				
MALE	61	7	38	108
FEMALE	41	8	46	96
TOTAL	102	15	84	204
SAMPLE MEANS				
MALE	36.60	37.57	48.92	41.03
FEMALE	35.63	42.00	58.56	47.61
TOTAL	36.12	39.93	54.20	44.13
SAMPLE STANDARD DEVIATIONS				
MALE	25.93	30.56	29.61	28.00
FEMALE	24.56	20.32	26.50	27.40
TOTAL	25.27	24.74	28.19	27.85

TABLE 3

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Composite)
FOR ALL GRADES

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	61	7	37	107
FEMALE	41	7	46	95
TOTAL	102	14	83	202

SAMPLE MEANS				
MALE	39.16	40.85	53.40	44.15
FEMALE	33.56	24.85	55.87	44.07
TOTAL	36.91	32.85	54.77	44.11

SAMPLE STANDARD DEVIATIONS				
MALE	26.06	32.43	30.97	28.71
FEMALE	22.06	15.12	26.29	26.49
TOTAL	24.57	25.69	28.32	27.62

TABLE 4

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Mathematics)
FOR ALL GRADES

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	61	7	38	108
FEMALE	41	8	46	96
TOTAL	102	15	84	204

SAMPLE MEANS				
MALE	41.26	52.14	52.55	46.06
FEMALE	29.34	20.37	48.43	38.15
TOTAL	36.47	35.20	50.29	42.34

SAMPLE STANDARD DEVIATIONS				
MALE	27.62	37.18	32.18	30.44
FEMALE	22.07	8.03	26.87	25.94
TOTAL	26.09	29.89	29.28	28.62

TABLE 5

SUMMARY OF SC SCORES FOR HIGH SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	23	4	21	49
FEMALE	14	3	19	36
TOTAL	37	7	40	85

SAMPLE MEANS				
MALE	.59	.53	.67	.62
FEMALE	.61	.59	.71	.66
TOTAL	.60	.56	.69	.64

SAMPLE STANDARD DEVIATIONS				
MALE	.14	.18	.17	.16
FEMALE	.11	.02	.14	.13
TOTAL	.13	.13	.15	.15

TABLE 6

SUMMARY OF GPA FOR HIGH SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	20	4	19	43
FEMALE	11	3	19	33
TOTAL	31	7	38	76

SAMPLES MEANS				
MALE	2.03	2.05	2.71	2.33
FEMALE	2.09	2.40	2.98	2.63
TOTAL	2.05	2.20	2.84	2.46

SAMPLE STANDARD DEVIATIONS				
MALE	.637	.817	.735	.762
FEMALE	.744	.255	.824	.858
TOTAL	.665	.626	.781	.813

TABLE 7

SUMMARY OF SCORES ON THE IOWA TEST (Mathematics)
FOR HIGH SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	21	4	18	44
FEMALE	8	3	15	26
TOTAL	29	7	33	70

SAMPLE MEANS				
MALE	54.19	79.25	69.05	61.45
FEMALE	44.12	14.33	60.60	50.19
TOTAL	51.41	51.43	65.21	57.27

SAMPLE STANDARD DEVIATIONS				
MALE	30.38	17.72	27.15	29.89
FEMALE	22.49	1.15	25.36	27.07
TOTAL	28.41	36.90	26.29	29.19

TABLE 8

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Verbal)
FOR HIGH SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	21	4	18	44
FEMALE	8	3	15	26
TOTAL	29	7	33	70
SAMPLE MEANS				
MALE	48.33	43.25	58.72	51.20
FEMALE	49.00	27.66	69.33	58.26
TOTAL	48.51	36.57	63.54	53.82
SAMPLE STANDARD DEVIATIONS				
MALE	25.91	34.78	29.18	28.46
FEMALE	33.50	26.38	18.89	27.98
TOTAL	27.57	30.11	25.24	28.29

TABLE 9

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Composite)
FOR HIGH SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	21	4	17	43
FEMALE	8	3	15	26
TOTAL	29	7	32	69

SAMPLE MEANS				
MALE	50.95	58.25	68.23	57.62
FEMALE	53.12	11.66	69.26	57.65
TOTAL	51.55	38.28	68.71	57.63

SAMPLE STANDARD DEVIATIONS				
MALE	27.05	31.95	23.94	27.40
FEMALE	27.08	7.37	19.53	27.65
TOTAL	26.59	33.89	21.65	27.29

TABLE 10

SUMMARY OF SC SCORES FOR GRADE SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	43	3	22	69
FEMALE	35	6	34	76
TOTAL	78	9	56	145
SAMPLE MEANS				
MALE	.60	.54	.69	.63
FEMALE	.58	.66	.67	.63
TOTAL	.59	.62	.68	.63
SAMPLE STANDARD DEVIATIONS				
MALE	.14	.14	.14	.14
FEMALE	.15	.12	.11	.14
TOTAL	.14	.13	.12	.14

TABLE 11

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Verbal)
FOR GRADE SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	40	3	20	64
FEMALE	33	5	31	70
TOTAL	73	8	51	134

SAMPLE MEANS				
MALE	30.45	30.00	40.10	34.04
FEMALE	32.39	50.60	53.35	43.65
TOTAL	31.32	42.87	48.15	39.06

SAMPLE STANDARD DEVIATIONS				
MALE	24.02	28.93	27.80	25.63
FEMALE	21.29	11.32	28.30	26.29
TOTAL	22.69	20.64	28.58	26.33

TABLE 12

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Composite)
FOR GRADE SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	40	3	20	64
FEMALE	33	4	31	69
TOTAL	73	7	51	133

SAMPLE MEANS				
MALE	32.97	17.66	40.80	35.10
FEMALE	28.81	34.75	49.38	38.95
TOTAL	31.09	27.42	46.02	37.10

SAMPLE STANDARD DEVIATIONS				
MALE	23.56	14.57	31.15	26.07
FEMALE	18.14	10.81	26.93	24.33
TOTAL	21.25	14.58	28.67	25.16

FIGURE I
RELATIVE POSITION OF MEAN SCORES
(All scores scales to interval 0-1)

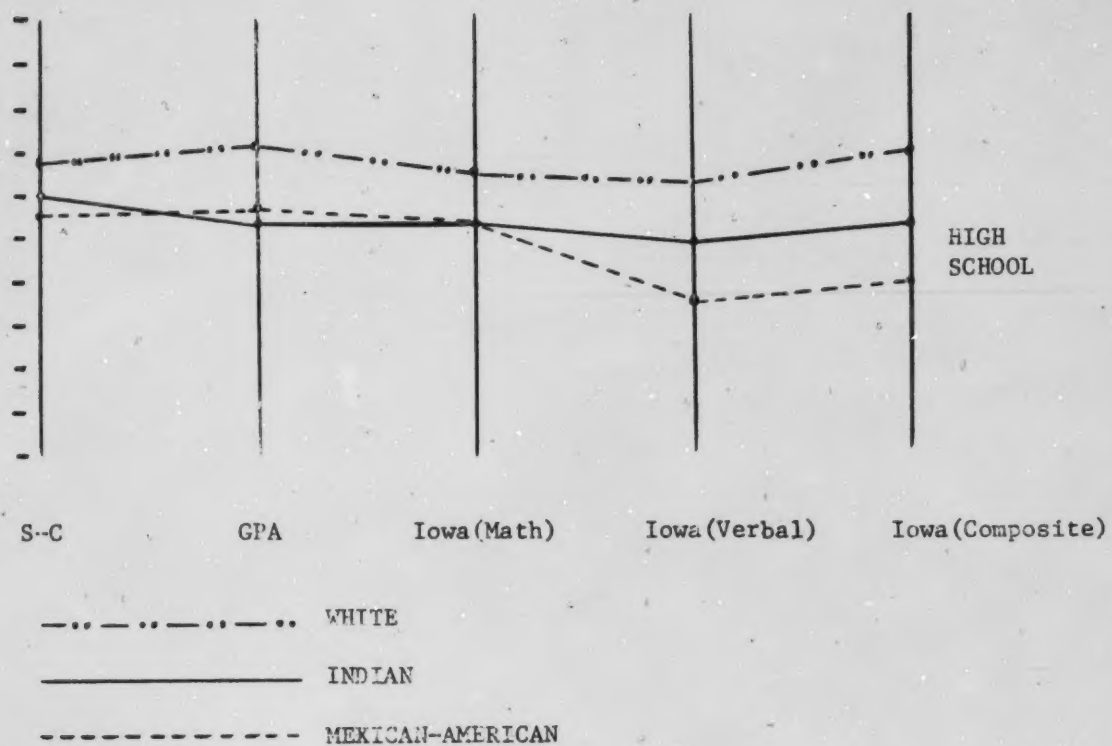


TABLE 13

SUMMARY OF PERCENTILE SCORES ON THE IOWA TEST (Mathematics)
FOR GRADE SCHOOL STUDENTS

	AMERICAN INDIAN	SPANISH AMERICAN	CAUCASIAN	TOTAL
SAMPLE SIZE				
MALE	40	3	20	64
FEMALE	33	5	31	70
TOTAL	73	8	51	134
SAMPLE MEANS				
MALE	34.47	16.00	37.70	35.48
FEMALE	25.78	24.00	42.54	33.68
TOTAL	30.53	21.00	40.64	34.54
SAMPLE STANDARD DEVIATIONS				
MALE	23.72	15.62	29.45	26.17
FEMALE	20.75	8.27	25.94	24.22
TOTAL	22.70	11.22	27.19	25.09

IV 2. Inferential Statistics

The SC scores for high school students (see Table 5) when tested for differences existing simultaneously between the three ethnic groups give the following.

TABLE 14

Analysis of variance test for differences existing in group mean SC when tested simultaneously.

SOURCE	SS	df	MS	F
BETWEEN	.2222	2	.1111	5.393
ERROR	1.6710	81	.0206	
TOTAL	1.8932	83		

The value of the F test statistic exceeds $F_{.01}(2,81)$ and we must reject the hypothesis,

H_0 : No differences exist between group means when tested simultaneously.

A T test for individual group differences indicates the following,

H_0 : No difference between Indian and Mexican students. This hypothesis cannot be rejected.

The GPA from Table 6 are also analyzed using a one way analysis of variance.

TABLE 15

Analysis of variance test for differences existing in group mean GPA when tested simultaneously.

SOURCE	SS	df	MS	F
BETWEEN	114116	2	57058	10.89
ERROR	382413	73	5238	
TOTAL	496579	75		

Again the F test statistic exceeds $F_{.01}(2,73)$ and we must reject the following hypothesis,

H_0 : No significant differences exist between group means when tested simultaneously.

For the scores on the Iowa Test of Educational Development given in Tables 7 through 9 the results of a one way analysis of variance for the three ethnic groups are given in Tables 16, 17, and 18.

For the Iowa Mathematics scores the value of the F statistic is clearly too low to reject the hypothesis of no differences in means. In the case of the verbal and composite test scores we must reduce the confidence to 97.5% or $\alpha = .025$ to reject the null hypothesis.

TABLE 16

Analysis of variance test for differences existing in
group mean Iowa (Mathematics) scores when tested simultaneously.

SOURCE	SS	df	MS	F
BETWEEN	3276	2	1638	2.04
ERROR	52885	66	801	
TOTAL	56161	68		

TABLE 17

Analysis of variance test for differences existing in
group mean Iowa (Verbal) scores when tested simultaneously.

SOURCE	SS	df	MS	F
BETWEEN	5987	2	2993	4.19
ERROR	47128	66	714	
TOTAL	53115	68		

TABLE 18

Analysis of Variance test for differences existing in group mean Iowa (Composite) scores when tested simultaneously.

SOURCE	SS	df	MS	F
BETWEEN	5845	2	2922	4.607
ERROR	41221	65	634.2	
TOTAL	47066	67		

The only data available that are common to both high school and grade school students are the SC scores. There are no significant differences between Indian students in grade school and Indian students in high school in the SC score. There are no significant differences between Caucasian students at different grade levels, and the differences that do exist between ethnic groups are apparently present at all levels.

Academic ability, or the ability to succeed in school, is measured by GPA rather than IQ, aptitude, or achievement tests. We shall assume this implied definition of academic ability and attempt to determine which of our other variables are strongly correlated with GPA.

To do this a linear regression model is used with all possible combinations of the variables available. The models are described in Table 19. The column headed R^2 gives the squared value of the multiple correlation co-efficient. This statistic is an estimate of that fraction of the total sum of squares accounted for by fitting the model.

From Table 19 it appears that the best single predictor of GPA is the SC score, and the poorest single predictor is the Iowa (Mathematics) score (See also tables 5, 6, and 7).

To determine the best model the following hypothesis is tested;

$$H_0: \text{In the full model } (Y=Xb+e), b_2=b_3=b_4=0.$$

This hypothesis states that in the presence of SC the Iowa test scores make no significant contribution in predicting GPA. This hypothesis must be rejected (See Table 20).

Again using the full model the following hypothesis is tested;

$$H_0: \text{In the full model } (Y=Xb+e), b_3=b_4=0.$$

This hypothesis states that in the presence of SC and the Iowa (Verbal) scores, the other Iowa scores make no significant contribution in predicting GPA. This hypothesis cannot be rejected at the .01 level. (See Table 21)

TABLE 19

Multiple correlation co-efficients associated with the possible linear models regressing GPA on the listed variables (high school students) with the model $Y = Xb + e$.

Y	Grade Point Average
X ₁	SC of Academic Ability
X ₂	Iowa (Verbal)
X ₃	Iowa (Composite)
X ₄	Iowa (Mathematics)

The zeros and ones indicate exclusion and inclusion of the variables in the regression model.

X ₁	X ₂	X ₃	X ₄	R ²
0	0	0	1	.19
0	0	1	0	.40
0	0	1	1	.40
0	1	0	0	.42
0	1	0	1	.44
0	1	1	0	.44
0	1	1	1	.45
1	0	0	0	.58
1	0	0	1	.63
1	0	1	0	.66
1	0	1	1	.66
1	1	0	0	.67
1	1	0	1	.68
1	1	1	0	.68
1	1	1	1	.68

TABLE 20

Analysis of variance for test of no significance of
Iowa test scores in predicting GPA in the presence of SC.

SOURCE	SS	df	MS	F
REGRESSION	4691897	5		6.53
HYPOTHESIS	4655915	2		
REDUCED MODEL	35981	3	11993	
RESIDUAL	113806	62	1835	
TOTAL	4805704	67		

TABLE 21

Analysis of variance for test of no significance of
Iowa test scores (Composite and Mathematics) in predicting
GPA in the presence of SC and Iowa Verbal.

SOURCE	SS	df	MS	F
REGRESSION	4691897	5		
HYPOTHESIS	4688612	3		
REDUCED MODEL	3285	2	1642	
RESIDUAL	113806	62	1835	
TOTAL	4805704	67		.89

We can reject this hypothesis with only 50% confidence. While failure to reject does not imply acceptability of the null hypothesis it should be noted that in model selection additional variables can increase but never reduce the value of R^2 . This follows from the fact that

$$S_{11.23...p} \leq S_{11.23...p-1} \text{ and } R^2 = 1 - \frac{S_{11.23...p}}{S_{11.}}$$

It is then reasonable to accept the hypothesis

$$H_0: b_3 = b_4 = 0$$

and to conclude that our best predictor model is

$$GPA = b_0 + b_1(SC) + b_2(\text{Iowa Verbal}).$$

From Table 19 we note that this choice reduces 67% of the variance from our observed values of GPA.

Since SC and Iowa verbal are assumed to be the best predictors of academic achievement a test is done to determine if the differences that exist between Caucasian and Indian students GPAs remain significant when the GPA is adjusted for the differences in the covariates, SC and Iowa verbal. This test is done in two parts. The hypotheses tested are

H_b : The slopes of the regression lines (or planes) are equal and,

H_μ : Assuming equality of slopes the means are equal.

These tests yield the results $F_b = .31$ and we cannot reject H_b . $F_\mu = 164.8$ and we must reject the second part of the hypothesis and conclude that the difference in the group means for Indian and Caucasian students cannot be completely accounted for by SC as measured by the Brookover Scale together with the Iowa verbal score.

The covariate SC alone was found to be a significantly poorer predictor of GPA than SC combined with Iowa verbal. The same test of differences in group means adjusted for the single covariate SC yielded the following results,

$$F_b = .38$$

$$F_\mu = 21.47.$$

In this case, the test for equality of regression slopes cannot be rejected and again we must reject the hypothesis of equal means when adjusted for differences in SC.

Some of the statistics used in these tests are listed in Table 22. It will be noted that the coefficient of correlation between GPA and Iowa verbal is nearly the same for Indian and Caucasian students. The same is true for the correlation between SC and Iowa verbal. There is a slight difference in the coefficients of correlation for SC and GPA.

TABLE 22

Variances, covariances and coefficients of correlation
between variables used in the predictor model.

1. GPA
2. SC
3. Iowa (Verbal)

	AMERICAN INDIAN	CAUCASIAN
N	28	33
s_1^2	.33	.43
s_2^2	.02	.02
s_3^2	719.	637
s_{12}	.05	.07
s_{13}	9.79	10.3
s_{23}	1.49	1.68
r_{12}	.67	.76
r_{13}	.63	.62
r_{23}	.41	.45

IV 3. Non-Parametric Tests

The students were asked to list those persons they considered to be interested in the student's academic achievement and to indicate who each person was. Of particular interest is the question which students included school personnel in their lists of "Academic Significant Others". Since the data is qualitative a non-parametric test of association, the Pearson Chi-Square test, is used.

The following hypothesis is tested,

H_0 : Including school personnel in the list of academic significant others is independent of classification as Indian or Caucasian.

In making the data count, those students that gave no response to this question were omitted. Thus, only those students who listed some significant others were grouped as having listed or not listed school personnel.

The hypothesis of independence (See Table 23) cannot be rejected for either high school students or grade school students at the $\alpha = .01$ level. For high school students the hypothesis can be rejected with 75% confidence and for grade school students with 97% confidence.

It should be pointed out that "school personnel" as included in the data count included all staff personnel, i.e. librarians, counselors, coaches, teachers etc. Among high

TABLE 23

Contingency Tables for testing independence between
 (1) including school personnel as academic significant others
 and (2) being Indian or Caucasian.

HIGH SCHOOL

	INDIAN	CAUCASIAN	TOTAL
INCLUDED SCHOOL PERSONNEL	13	21	34
OMITTED SCHOOL PERSONNEL	16	14	30
TOTAL	29	35	64
TEST STATISTIC	1.46		

GRADE SCHOOL

	INDIAN	CAUCASIAN	TOTAL
INCLUDED SCHOOL PERSONNEL	30	32	62
OMITTED SCHOOL PERSONNEL	49	24	73
TOTAL	79	56	135
TEST STATISTIC	5.029		

school students non-teaching personnel were named more frequently than teachers. This, however, can be accounted for by the fact that these individuals have contact with a greater proportion of the student body. It was also noted that many teachers were designated by the students in a non-teaching capacity such as coach.

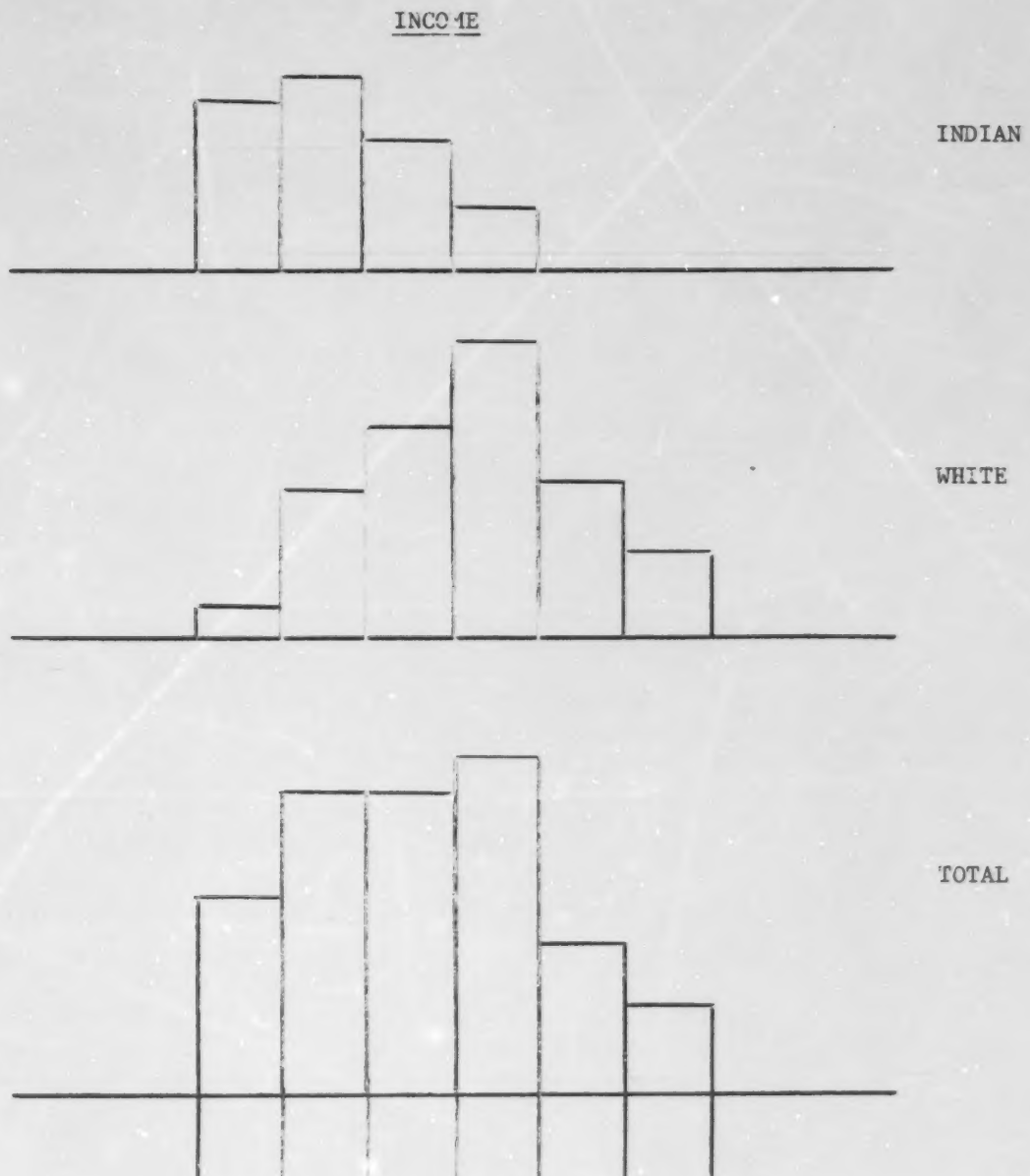
There appears to be a great disparity in income between Indian and Caucasian families. To test for independence of SC and family income those subjects whose income falls in the range containing the means for both Indian and non-Indian families were of necessity omitted. No SC scores are omitted since we have a point estimate of the mean for the total sample, thus from a total of the respondents supplying income information, a sample size of 57 was used in the Pearson X^2 test for independence.

TABLE 24

		SC		
INCOME	LOW	LOW	HIGH	
		15	12	27
	HIGH	4	26	30
TOTAL		19	38	57

The value of the X^2 test statistic of 11.4 indicates rejection of the hypothesis of independence at the .001 level.

Income data is shown in Figure 2. Based on midpoints of intervals our data shows an average income for Indian families of 5,000 per year and for Caucasian families 11,500 per year. The apparent high correlation between SC and family income could lead one to believe that herein lies a major factor in the problem under consideration.



CHAPTER V

CONCLUSIONS, DISCUSSIONS AND RECOMMENDATIONS

V. 1. Conclusions

Based on the data analyzed in this research, the following conclusions can be made:

1. Differences in means:

Differences exist between the group means for Indian students and the group means for white students on all measurements available for this study. The Indian students tend to score lower on the Iowa Test of academic achievement and the Iowa Basic. Although, not all differences were significant at the $\alpha = .01$ level. The mean self-concept score for Indian students is significantly lower than that for white students and the mean GPA for Indian student is significantly lower than that for the white students.

2. S-C and GPA

The self-concept scores and the GPA are evaluated, and self-concept seems to provide a good predictor of GPA. The ability to predict GPA is slightly enhanced by inclusion of the score of the Iowa Test of academic achievement (verbal). The inclusion of the other Iowa test scores in presence of self-

concept and Iowa (verbal), does not significantly improve the ability to predict GPA when the GPA is adjusted for differences in self-concept and Iowa (verbal) scores, the differences between the white students and Indian groups remain significant, when GPA is adjusted for differences in self-concept alone the differences remain significant.

3. Academically significant others

The hypothesis of independence between race and the tendency to include school personnel in the list of academically significant others is intended to motivate whether or not the Indian students relate to their teachers in the same way as white students. This hypothesis cannot be rejected at the $\alpha = .01$ level, however, by lowering the confidence levels slightly we can reject this hypothesis. Thus, there is some correlation between race and the tendency to identify school personnel as academically significant others with the white students showing a slightly greater tendency to include school personnel as academically significant others. This is not surprising since the majority of the teachers in the Mt. Adams School District are non-Indians.

4. S-C and Economic Background

A hypothesis of independence of family income and self-concept score must be rejected. There is a strong correlation between family income and S-C, and it can be also inferred that there is a correlation between income and GPA. Perhaps, the most startling disparity that exist between Indian and non-Indian students is our sample's is the differences in income of the student's family. While our sample data for family income is admittedly small, our estimates are substantiated by other data from the Center for the Study of Migrant and Indian Education.

V. 2. Discussions

We have repeatedly said throughout this report that any research is limited by its scope, design, and population. Thus, we cannot claim that our research has completely solved the problem. However, we can claim that this study provides some insights into the problem itself and perhaps provides some directions for further studies. Researchers in this field of self-concept are still faced with these problems:

- a. which instrument measures best the self-concept?
- b. which instrument best fit the self-concept of American Indian students since most of the S-C

instruments are written for white individuals?

- C. how valid is the comparison between findings of different studies of self-concept which were based on the use of different samples, designs, and S-C instruments.
- d. because of the complexity of self-concept as a behavioral phenomenon, how far can the reader generalize from research studies on self-concept?
- e. what are the specific educational implications of research on self-concept in general and regarding the education of Indian students in particular?

We shall try to make some interpretive points to clarify our findings and conclusions.

First of all, despite of our first conclusion which states that the score of Indian students on self-concept and GPA was lower than that of the white students, this does not imply to say that Indian students were inferior in their self-concept and their academic achievements. On the contrary, our data seems to suggest that the Indian students have positive self-concept of academic ability and that they are fairly competent persons within their own culture. This finding is supported by what Dreyer and Havighurst have found on their national study

of the self esteem of American Indian youth. Dreyer and Havighurst (1970) concluded:

"the self esteem and the self-concept data from our study indicates that the great majority of Indian youth are themselves as fairly competent persons within their own social world. This social world is characterized for the majority of these young people by Indianness and poverty. If they came into contact with expectations by teachers or others from the social world from the urban industrial and middle class society, we should expect them to show some doubts about their competence, we should expect the self esteem to be lowered."¹¹

Second, our data also suggests that Indian students seem to be more positive in their attitudes toward their future than expected. They seem to be more competent and optimistic about their future. This can be an indication of their mental health and adjustment. Dreyer (1970) mentions that "the attitude which a person has about his future has often been noted as one indication

11. Philip Dreyer, "The Relation of Self-Esteem to personal Social Adjustment Among American Indian Students," in Havighurst, Ed: The National Study of American Indian Education, Vol. I, No. 7, Sept., 1970, p. 6

of mental health and of an individual's general feelings about what life holds in store for him."¹²

Third, our study reported a strong correlation between self-concept and academic achievement among all our sample groups. The reader must keep in mind these points:

- a. The self-concept is a complex phenomenon.
- b. The self-concept of academic ability is
mannered here by Brookover, SCAA. So the
question is: does this instrument really measure
self-concept of academic ability?
- c. The correlation is a linear correlation and
the relationship should not be inferred as a
cause effect relationship?
- d. Despite of the numerous studies cited in Chapter
II of this report, which supports the correlation
between self-concept and academic performance,
the Coleman report on Equality Educational
Opportunity¹³ cautioned against loose inter-
pretation of such correlation when it comes to
minority group students. As Coleman put it:

"...of the three attitudinal variables,
however, it (self-concept) is the weakest

-
12. Philip Dreyer, "The Relation of Self-Esteem to person-Social Adjustment Among American Indian Students," in Havighust, ed: The National Study of American Indian Education; Vol. 1, No. 7, Sept. 1970, p. 6.
 13. James Coleman, Equality of Educational Opportunity, Washington D.C., U.S. Department of Health, Education, and Welfare, Office of Education, 1966.

especially among minority groups, where it shows inconsistent relations to achievement at Grades 9 and 12..."¹⁴

- e. Dreyer in a national sample of Indian students reported that the relationship between self-esteem and class rank was weak for both sexes but seemed stronger in a positive direction for boys than for girls. The results of this analysis led us to conclude that for Indian students self-esteem was not related to school achievement, at least not to the extent that it appeared to be related to white population which were reported in most studies. The value placed upon "self" by Indian students seemed to be quite separate from performance in school and led to the hypothesis that scholastic achievement was not an important factor in the over-all thinking of Indian students."¹⁵

Dreyer is obviously studying self-esteem and he is equating it with self-concept. He concludes:

"It seems clear the commonly held notions about the importance of school performance

14. Ibid p. 320

15. Philip Dreyer: op. cit. pp. 26-28.

for the overall "self-concept" of students do not hold for Indian students, and that much more needs to be known about the other factors in an Indian student's life, such as his orientation toward his family and Indian society in general before the "phenomonal self" of Indian students can be accurate be assessed and the role of formal education among Indians can be understood."¹⁶

While we accept the spirit of this conclusions we cannot accept the substance of it. That is, it is very hard to generalize in regard to the relationship between self-concept and academic performance when we operationally define all our constructs and terms. Research conducted at the University of Minnesota under the supervision of Cyril Hoyt seem to indicate that self-concept and self-esteem are related but not the same thing."¹⁷ Thus, if they are different, they should be treated as separate variables and measured by different instruments.

16. Ibid. p. 29.

17. Personal Correspondence with Prof. Cyril J. Hoyt.

V. 3. Recommendations

The following recommendations are presented to those involved in Indian education, teachers, administrators, parents, and school counselors. We certainly hope they will be discussed, debated and implemented.

1. The Indian students should be perceived as perfectly normal students mentally and as equally competent academically with the white students. There is no evidence to support the notion that Indian students are genetically less intelligent than other American children. To the contrary, several studies on mental development showed that Indian children are about the same as white children of the surrounding society. Havighurst cited several examples such as the Goodenough Draw-A-Man-Intelligence test in which Indian children made an average of 101.5 which is "slightly but definitely superior to the average of white children."¹⁸ Also on the Grace Arthur Performance Test (a battery of non-verbal tests), a sample of Indian pupils made an average of 100.2 "slightly above the national average for whites." Voyat, a

18. Robert Havighurst: National Study of American Indian Education, Vol. IV, No. 6, p. 6.

Swiss researcher after comparing Swiss children with Oglala Sioux children on a Piaget Test on mental development concluded:

"the inferiorities shown by IQ tests among Indian children are dependent upon the nature of the tests themselves, in particular their cultured content, since these inferiorities are not when one analyzes the development of more fundamental concepts."¹⁹

Consequently, the Indian students should not be evaluated by instruments which are culturally loaded and verbally biased.

2. The performance of Indian children should be interpreted within a socio-economic and sub-cultural boundaries. Undoubtedly, the Indian students are culturally deprived and thus seriously handicapped in the school to compete on a white-man-made curriculum and be assessed by a white-man-made tests. The Indian students are disadvantaged because they come from poor, often illiterate and often isolated from the urban industrial culture. Then socio-economic and educational characteristics of the Indian communities have their impact on the school performance of the Indian students and thus, we should expect their performance to be lower than their counter parts -

19. Ibid. p. 7.

white students. Unless the socio-economic and educational status of Indian communities rise, we should not expect a rise in the academic performance of Indian students.

3. Since the prime objective of Indian education is to help the Indian people maintain their dignity and achieve self identity, we strongly recommit more Indians parental involvement in education. President Nixon on his July, 1970 message on Indian Affairs proposed:

"We must assure the Indian that he can assume control over his own life without being separated involuntarily from the tribal group. And we must make it clear that Indians can become independent of federal control without cutting off from federal concern and federal support."²⁰

If the Indian culture is to be preserved from being absorbed by the education of the Indian children has to be seen and practical.

4. Because the majority of teachers of Indian students are non-Indians, efforts should increase toward recruiting, training and place of more Indian teachers in the schools. On the other hand, efforts should be

20. Ibid. p. 3.

intensified to remove the ignorance of non-Indian teachers and administrators about the Indian culture. In-service education programs in cultural awareness and cultural sensitivity must be required for all teachers and school personnel who work with Indian students. Despite of the fact that many non-Indian teachers report positive attitudes Indian students, this does not indicate the adequacy of their knowledge of the Indian culture. Such verbal stititudes should not waive the need for formal training in Indian history and culture.

5. The curriculum for Indian students must be based on the premise that Indians identity, pride and respect are goals of Indian education. The curriculum should honor the individuality, the uniqueness, the worth and the dignity of the Indian student. Recognition of the Indian student's needs should be the first criterion in curriculum development. Local resource people from the Indian community must be utilized in curriculum making. This will give the Indians more influence and power and shaping the educational experience of their children and will give the children a sense of belonging and consequently, the curriculum will become relevant and valid.

6. Careful procedure for selecting teachers of Indian children is needed. Teacher education institutions should strengthen their community oriented and field centered teacher education program. Teachers of Indian children not only must be well prepared in their subject and in the Indian culture, they also must be well adjusted, personable, open and tolerant human beings. The mental health of the teacher is proven to be a factor influencing the child's performance as well as his self-concept."²¹
7. Teachers must be honest with their Indian students. They must care about their student's abilities and performance and take the time to discuss with the student his strengths and weaknesses to help him develop a more realistic self-concept and become aware of his weaknesses. Also unconditioned positive regard for the students must be demonstrated by their teachers. The emphasis should be on the premise that Indian children "can" and "shall" learn. Magnifying errors does not result in success. In this respect, we recommend that teachers avoid predetermined notions about Indian students and make every effort to understand them within their own

21. See Martive (1956), Steiner (1957), Perkins (1958) and Cutler and M-Neil (1963).

social and cultural world. They also need to become constant observers to their student's behavior, aware of their feelings and concerns, interested in their problems and willing to help them help themselves.

8. School officials should not have static views toward the Indian students' activities to learn even if they have emperical findings to support such view.²² Before accepting any research conclusion on Indian children, school officials must question the limitations of that research, the validity of the measures, the vigorousness of the design, and the bias of the researcher. As indicated before, more tests and instruments are culturally biased and verbally oriented.
9. More valid and well developed instruments should be designed to assess the Indian students abilities and evaluate his performance. These instruments should account for the cultural variables and the socio-economic variables, which influence the life of the Indian children and youth.
10. More emperical research on Indian students needs to be carried out so we may have better insights about

22. See LeBenne and Greene, op. cit., pp. 28-34.

their characteristics and the problems they face. Such research will enable us to field test many of our culturally-based curriculum products such as those developed by the Center for the Study of Migrant and Indian Education. Emperical research is the only way to test and refine our educational theory and to improve and perfect our classroom practice.

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APPENDIX A
SELF - CONCEPT OF ACADEMIC ABILITY
(Form A)

NAME: _____

BIRTH DATE: _____

BIRTH PLACE: _____

RESIDENCE ADDRESS: _____

GRADE: (Circle one) 6 - 8 - 10 - 12

SEX: ☐ Boy ☐ Girl

ARE YOU: (Check one)

☐ American Indian

☐ Afro American

☐ Mexican American

☐ Oriental

☐ Other (specify): _____

DO YOU LIVE WITH YOUR PARENTS? ☐ Yes ☐ No

DID YOU ATTEND SCHOOLS IN ANY OTHER DISTRICTS?

☐ Yes ☐ No

SELF-CONCEPT OF ABILITY--GENERAL*
(FORM A)
Michigan State University
Bureau of Educational Research

Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?
 - a. I am the best
 - b. I am above average
 - c. I am average
 - d. I am below average
 - e. I am the poorest.
2. How do you rate yourself in school ability compared with those in your class at school?
 - a. I am among the best
 - b. I am above average
 - c. I am average
 - d. I am below average
 - e. I am among the poorest
3. Where do you think you would rank in your class in high school?
 - a. among the best
 - b. above average
 - c. average
 - d. below average
 - e. among the poorest
4. Do you think you have the ability to complete college?
 - a. yes, definitely
 - b. yes, probably
 - c. not sure either way
 - d. probably not
 - e. no
5. Where do you think you would rank in your class in college?
 - a. among the best
 - b. above average
 - c. average
 - d. below average
 - e. among the poorest

*Copyright, Bureau of Ed. Research
Michigan State University, 1962.

6. In order to become a doctor, a lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?
- a. very likely
 - b. somewhat likely
 - c. not sure either way
 - d. unlikely
 - e. most unlikely
7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?
- a. my work is excellent
 - b. my work is good
 - c. my work is average
 - d. my work is below average
 - e. my work is much below average
8. What kind of grades do you think you are capable of getting?
- a. mostly A's
 - b. mostly B's
 - c. mostly C's
 - d. mostly D's
 - e. mostly E's

PERCEIVED PARENTAL EVALUATION OF ACADEMIC ABILITY SCALE

Please answer the following questions as you think your PARENTS would answer them. If you are not living with your parents answer for the family with whom you are living.

Circle the letter in front of the statement that best answers each question.

1. How do you think your PARENTS would rate your school ability compared with other students your age?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
2. Where do you think your PARENTS would say you would rank in your high school graduating class?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
3. Do you think that your PARENTS would say you have the ability to complete college?
 - a. Yes, definitely
 - b. Yes, probably
 - c. Not sure either way
 - d. Probably not
 - e. Definitely not
4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think your PARENTS would say it is that you could complete such advanced work?
 - a. Very likely
 - b. Somewhat likely
 - c. Not sure either way
 - d. Somewhat unlikely
 - e. Very unlikely
5. What kind of grades do you think your PARENTS would say you are capable of getting in general?
 - a. Mostly A's
 - b. Mostly B's
 - c. Mostly C's
 - d. Mostly D's
 - e. Mostly E's

PERCEIVED PEER EVALUATION OF ACADEMIC ABILITY SCALE

Think about your closest friend at school. Now answer the following questions as you think this FRIEND would answer them.

Circle the letter in front of the statement that best answers each question.

1. How do you think this FRIEND would rate your school ability compared with other students your age?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
2. Where do you think this FRIEND would say you would rank in your high school graduating class?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
3. Do you think that this FRIEND would say you have the ability to complete college?
 - a. Yes, definitely
 - b. Yes, probably
 - c. Not sure either way
 - d. Probably not
 - e. Definitely not
4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this FRIEND would say it is that you would complete such advanced work?
 - a. Very likely
 - b. Somewhat likely
 - c. Not sure either way
 - d. Somewhat unlikely
 - e. Very unlikely
5. What kind of grades do you think this FRIEND would say you are capable of getting in general?
 - a. Mostly A's
 - b. Mostly B's
 - c. Mostly C's
 - d. Mostly D's
 - e. Mostly E's

Go on to the next page

PERCEIVED TEACHER EVALUATION OF ACADEMIC ABILITY SCALE

Think about your favorite teacher--the one you like best; the one you feel is most concerned about your schoolwork. Now answer the following questions as you think this TEACHER would answer them.

Circle the letter in front of the statement which best answers each question.

1. How do you think this TEACHER would rate your school ability compared with other students your age?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
2. Where do you think this TEACHER would say you would rank in your high school graduating class?
 - a. Among the best
 - b. Above average
 - c. Average
 - d. Below average
 - e. Among the poorest
3. Do you think that this TEACHER would say you have the ability to complete college?
 - a. Yes, definitely
 - b. Yes, probably
 - c. Not sure either way
 - d. Probably not
 - e. Definitely not
4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this TEACHER would say it is that you could complete such advanced work?
 - a. Very likely
 - b. Somewhat likely
 - c. Not sure either way
 - d. Somewhat unlikely
 - e. Very unlikely
5. What kind of grades do you think this TEACHER would say you are capable of getting in general?
 - a. Mostly A's
 - b. Mostly B's
 - c. Mostly C's
 - d. Mostly D's
 - e. Mostly E's

Go on to the next page

GENERAL SIGNIFICANT OTHERS QUESTION

There are many people who are important in our lives. In the space below, list the Names of the people who you feel are important in YOUR life. Please indicate who each person is.

NAMES

WHO IS THIS PERSON?

If you finish before the time limit, please sit quietly. Do not turn the page.

APPENDIX B

SOCIO-ECONOMIC EDUCATIONAL BACKGROUND INVENTORY

A Covering letter to the Parents

A follow-up letter

I. EDUCATIONAL INFORMATION

I.1 Circle the highest grade you have completed

Yourself 1 2 3 4 5 6 7 8 9 10 11 12 College

Your Spouse 1 2 3 4 5 6 7 8 9 10 11 12 College

I.2 Comparing your educational level with that of your immediate relative (s) do you think they?

1. ☐ Generally have more education than you
2. ☐ Generally have less education than you
3. ☐ Generally have the same level of education as you

I.3 What level of education do you want your son or daughter to pursue?

1. ☐ Finish grade school
2. ☐ Finish high school
3. ☐ Get a college degree
4. ☐ Get a professional degree (medical, law, engineering, teaching)
5. ☐ Get a graduate job

I.4 In your judgment, do you think your son or daughter will reach the above goal?

1. ☐ Definitely think so
2. ☐ Hopefully so
3. ☐ I am not sure
4. ☐ I do not think so

I.5 How would you rate your child's school ability compared with other students of his age:

1. ☐ Among the best
2. ☐ Above average
3. ☐ Average
4. ☐ Below average
5. ☐ Among the poorest

II. SOCIAL MOBILITY

II. 1 How long have you been living in the Yakima Valley?

1. ☐ Less than five years
2. ☐ 5-10 years
3. ☐ 10-15 years
4. ☐ 15-20 years
5. ☐ More than twenty years

II.2 Do you have any plans to move out of the Yakima Valley?

1. ☐ Not at all
2. ☐ Not in the near future
3. ☐ Perhaps in the next two or three years
4. ☐ I am considering moving soon

II.3 Where do your immediate relative live?

1. ☐ Here in the White Swan area
2. ☐ In the Yakima Valley area
3. ☐ Outside the Valley but in the State of Washington
4. ☐ In another state
5. ☐ In another country

III. ECONOMIC BACKGROUND

III.1 Sources of Family income include:

1. ☐ Welfare, unemployed insurance
2. ☐ Wages
3. ☐ Professional fees or salaries
4. ☐ Self-employed
5. ☐ Working wife
6. ☐ Per capita
7. ☐ Other (please specify) _____

III.2 Do you own your home?

1. ☐ Yes
2. ☐ No

III.3 Level of family income

1. ☐ Below \$3,000 per year
2. ☐ Between \$3,000 - \$5,000
3. ☐ Between \$5,000 - \$10,000
4. ☐ Between \$10,000 - \$15,000
5. ☐ Between \$15,000 - \$20,000
6. ☐ Over \$20,000

Dear White Swan and Harrah Parents:

As you are aware, we are conducting a research study on the self-concept of academic ability among the children of the Mt. Adams School District. This research is sponsored by Central Washington State College and the Center for the Study of Migrant and Indian Education in Toppenish. Our sole intention is to improve the education of your child through the process of educational research. The results of this research will be given to your school and can be helpful in improving curriculum, testing procedures, counseling services and school-parent relationships.

Parent
Grandparent
As a Relative of _____,
Guardian

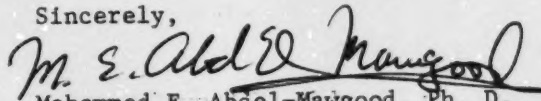
We need information from you to complete our study. The following inventory is designed to compliment the data we have from the school children. The information you provide will not be used by name except to match it with the right student(s).

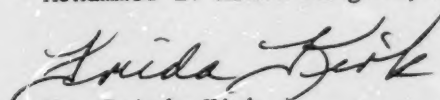
Please take some time to fill out this questionnaire. Try to answer all the questions to the best of your knowledge. Please hand in the inventory to the person who calls on you. He is a member of our research team. However, if your circumstances do not permit you to fill it out right now, you may do it at your earliest convenience and mail it to us using the enclosed, self-addressed, stamped envelope.

We would like to take this opportunity to thank you and your child for participating in the study. We assure you about the confidentiality of the information you provide to us. We are very conscious about the ethics of research.

Once more, many thanks to you for your cooperation.

Sincerely,


Mohammed E. Abdel-Mawgood, Ph. D.


Ms. Frieda Kirk

MEA/FK:ldh

May 17, 1973

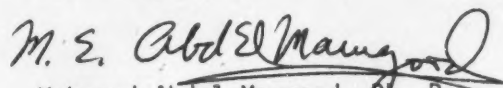
Dear Parents:

Three weeks ago, we have sent you through your son/daughter a questionnaire regarding the research study we do at the Migrant and Indian Education Center at Toppenish. Since we have not heard from you as yet, we thought of sending you this reminder. We would appreciate your prompt response so we may be able to proceed with the analysis of the data.

We are enclosing herewith another copy of the questionnaire as well as a stamped, self-addressed envelope for your convenience.

We thank you again for your cooperation and we are anxiously awaiting to hear from you.

Sincerely yours,



Mohamed Abdel-Mawgood, Ph. D.
Director, Self-Concept Among
Indian Children Research Study

MM:ldh

Enclosures

APPENDIX C

A Letter to the Superintendent

February 5, 1973

Mr. Thornton Fuson
Superintendent
Mt. Adams School District
White Swan, Washington 08952

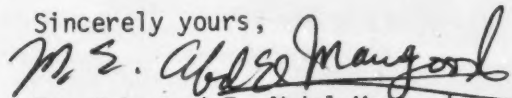
Dear Mr. Fuson:

I am writing to you requesting your permission to use your district as a research field for the Study we discussed last week. This research has to do with the self-concept of academic ability among Indian children. As I indicated in your office, it will require gathering some data through administering a self-concept scale to these students in grades 6, 8, 10 and 12 and the examination of some of the students' records, particularly their testing records.

Ms. Frieda Kirk, Supervisor of Student Teachers, will be directing this study with me. Both of us would like to assure you of the confidentiality and ethical handling of the data. The final report of the study as well as the raw data will be sent to the district for your use and further development of future research.

As you know, research in self-concept pertaining to Indian children has been nil. We are glad that your district is willing to pioneer in this field and we certainly appreciate your professional cooperation and indispensable help.

Sincerely yours,



Dr. Mohammed E. Abdel-Mawgood
Associate Professor and Curriculum
Consultant

MEA:ldh

cc: Ms. Frieda Kirk